Chapter 5.11
Educational Technology in the Medical Industry

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ABSTRACT

The enormous U.S. medical industry is a rich laboratory and think tank for technology integration. Higher education in the medical industry is comprised of a large number of professional training programs as well as formidable continuing medical education. Continuing education for medical professionals is inconsistent and flawed. Technology integration in medical fields has mirrored the false starts and frustrations seen generally in higher education. There are promising areas of investigation such as high-fidelity patient simulators and incorporation of wireless handheld devices for point-of-care reference information and best practices. Widespread adoption of electronic medical records may allow medical education researchers to link instructional practices to eventual patient outcomes, with implications for higher education.

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"It was the best of times, it was the worst of times…" Charles Dickens, A Tale of Two Cities

INTRODUCTION

This chapter introduces the issues, needs, history and challenges of higher education in the medical industry, including continuing medical education (CME). The scope of this important industry and the unique training and retraining needs of medical professionals are discussed. Exciting advances and applications in educational technology in medical applications are addressed and real world experiences of representative learners are presented in detail.

The enormous U.S. medical industry is a rich laboratory and think tank for information and communication technology, as well as technology applications in teaching and learning. With 14.3 million wage and salary workers, healthcare is one of the largest and fastest growing industries (U.S. Bureau of Labor Statistics, 2009). U.S. graduates in professional medical programs granting a bachelor's degree or higher total about 160,000 each year (National Center for Education Statistics, 2008), with a larger number in associate degree and certificate programs (National Center for Education Statistics, 2009). Healthcare is the most common field of study in subbaccalaureate programs. Many leaders in higher education and educational technology credit a background in a medical field for their inspiration and accomplishment. A great deal of innovative thinking, research, and application in progressive instructional approaches in higher education is grounded in the pressing need to train, assess, retrain, and sustain clinicians in a bewildering variety of specialties in a vast industry serving virtually the entire population. Consider the educational challenges of the medical arena, including:

- Primary training of hundreds of thousands of practitioners per year in approximately 50 fields and specialties.
- Credentialing and recredentialing of clinicians and technicians for competency, from cardiologists to registered nurses to pharmacy technicians.
- Continuous in-service education requirements, mandated for virtually every medical field, and requiring extensive preparation, delivery, verification, and documentation of instruction.
- Dissemination of new knowledge and skills in medical practice, some of it evolving and expanding at a dizzying rate.

Indeed, to choose a medical career is to personify the dusty high school admonition to be a lifelong learner, for a clinician who does not diligently learn and relearn throughout his or her career may become unemployable, if not dangerous.

But the medical industry is an often enigmatic mix of innovation and tradition, of reaching toward an innovative, often technology-based instructional future while holding to traditional, time-worn attitudes and practices. Technology integration in education has generally been technology-driven, faddish, expensive, at times frenetic, and with generally unsatisfying outcomes (Ely, Foley, Freeman, & Scheel, 1995; Reiser, 2002; Salomon, 2002). Ten years ago we described educational technologies as generally "expensive, fragile and stupid" (Hopper, 1999, p. 52). One researcher described the online instruction phenomenon as a "frenzied drive toward the Web-based cliff " (Harmon & Jones, 1999, p. 28). So has it been in the medical industry (Williams & Dittmer, 2009). Added to this is the natural rivalry among medical specialties for status, professional practice turf, and compensation. It has been only within the past quarter century that intensive care nurses and respiratory therapists dared carry a visible stethoscope to the hospital cafeteria; though this